

ABSTRACT OF THE DISCLOSURE

A computer system employs virtual channels and allocates different resources to
5 the virtual channels. Packets which do not have logical/protocol-related conflicts are
grouped into a virtual channel. Accordingly, logical conflicts occur between packets in
separate virtual channels. The packets within a virtual channel may share resources (and
hence experience resource conflicts), but the packets within different virtual channels
may not share resources. Since packets which may experience resource conflicts do not
10 experience logical conflicts, and since packets which may experience logical conflicts do
not experience resource conflicts, deadlock-free operation may be achieved.

Additionally, nodes within the computer system may be configured to preallocate
resources to process response packets. Some response packets may have logical conflicts
with other response packets, and hence would normally not be allocable to the same
15 virtual channel. However, by preallocating response-processing resources, response
packets are accepted by the destination node. Thus, any resource conflicts which may
occur are temporary (as the response packets which make forward progress are
processable). Viewed in another way, response packets may be logically independent if
the destination node is capable of processing the response packets upon receipt.
20 Accordingly, a response virtual channel is formed to which each response packet belongs.